Fort Benning, GA
Aquatic Monitoring

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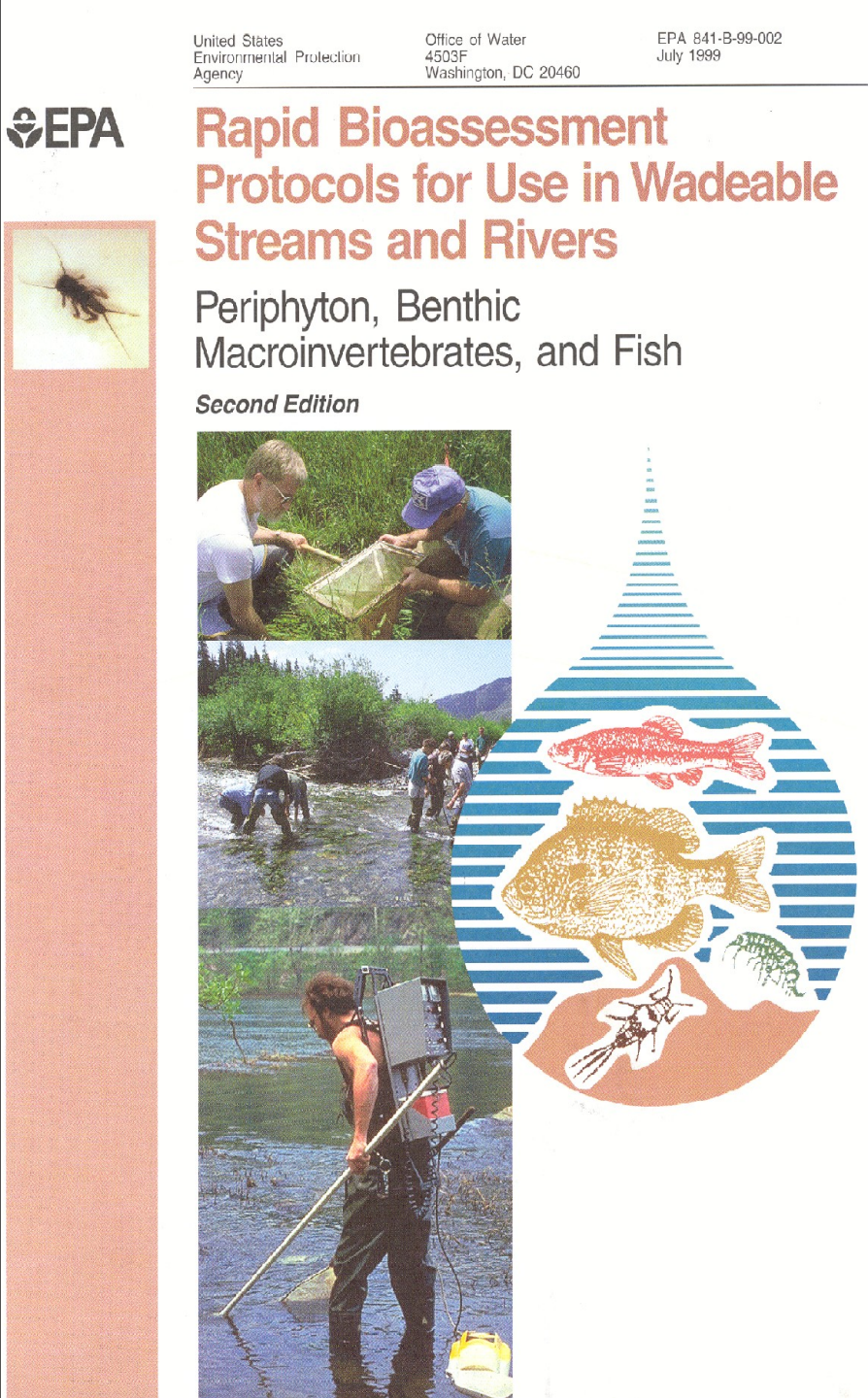
Rapid Bioassessment Protocols (Barbour et al. 1999)

- **Cost effective, scientific**
- **Implement at multiple sites**
- **Rapid results for resource managers**
- **Understood by the public**
- **Environmentally-benign procedures**

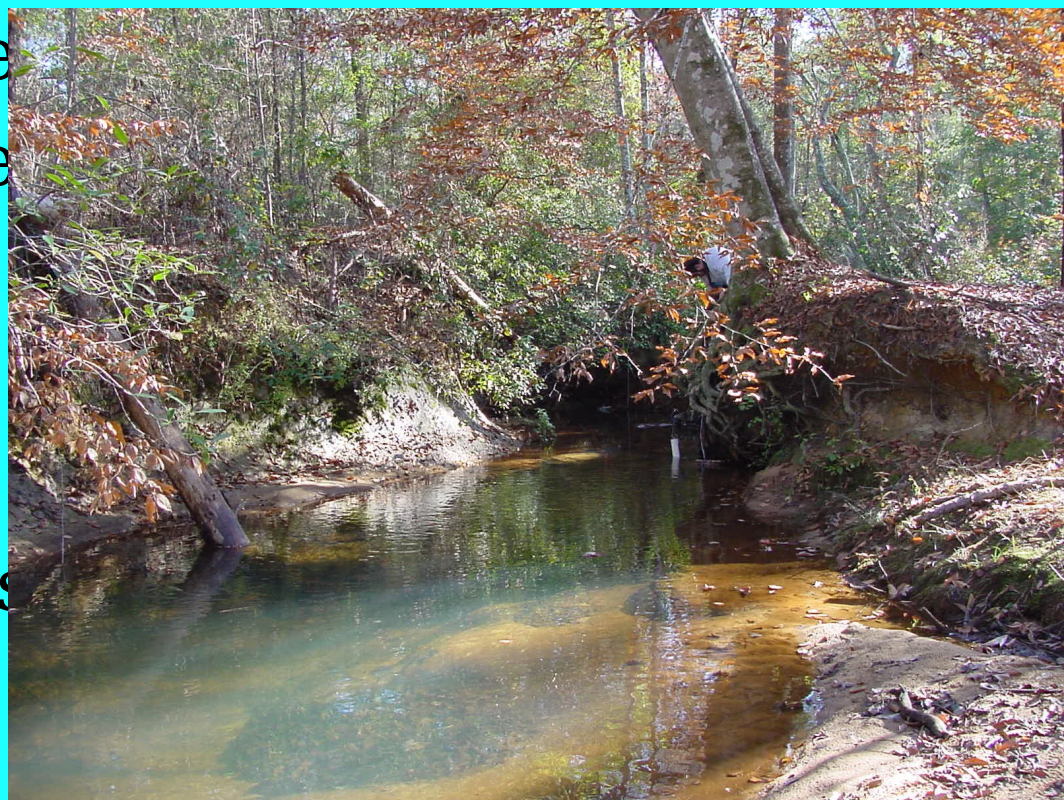

United States Environmental Protection Agency
Office of Water 4503F Washington, DC 20460
EPA 841-B-99-002 July 1999
EPA
Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers
Periphyton, Benthic Macroinvertebrates, and Fish
Second Edition

Metrics included in RBP

- Taxonomic data
  - Richness
  - % Composition
  - Tolerance/Intolerance indices (GAIBI)
  - Functional feeding group
  - Habits
- Physical habitat (Scores)
- Chemistry (*in situ*, laboratory)
- Substrate composition, charact

Ft. Benning Aquatic Monitoring
Task I

- Characterize biotic & abiotic features
  - Select study re
  - Physical studie
  - Aquatic biota
  - QA/QC plan
  - Data analysis
  - Reference sites



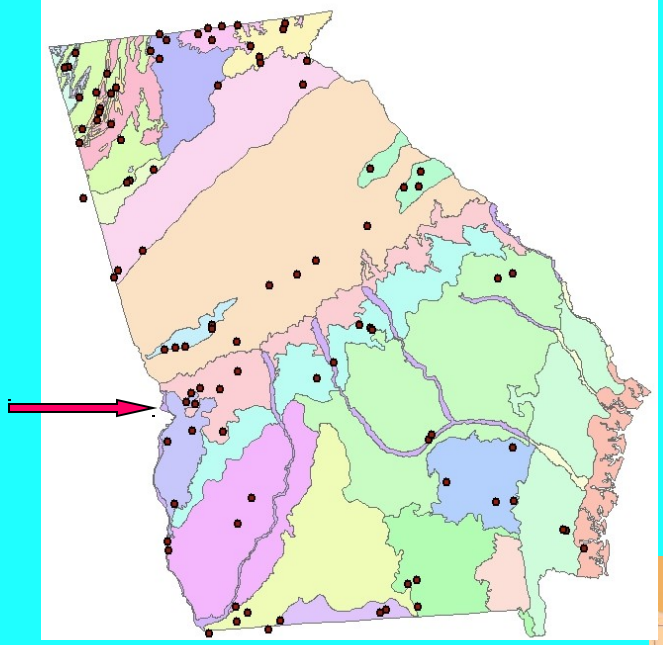
Ft. Benning Aquatic Monitoring Task II

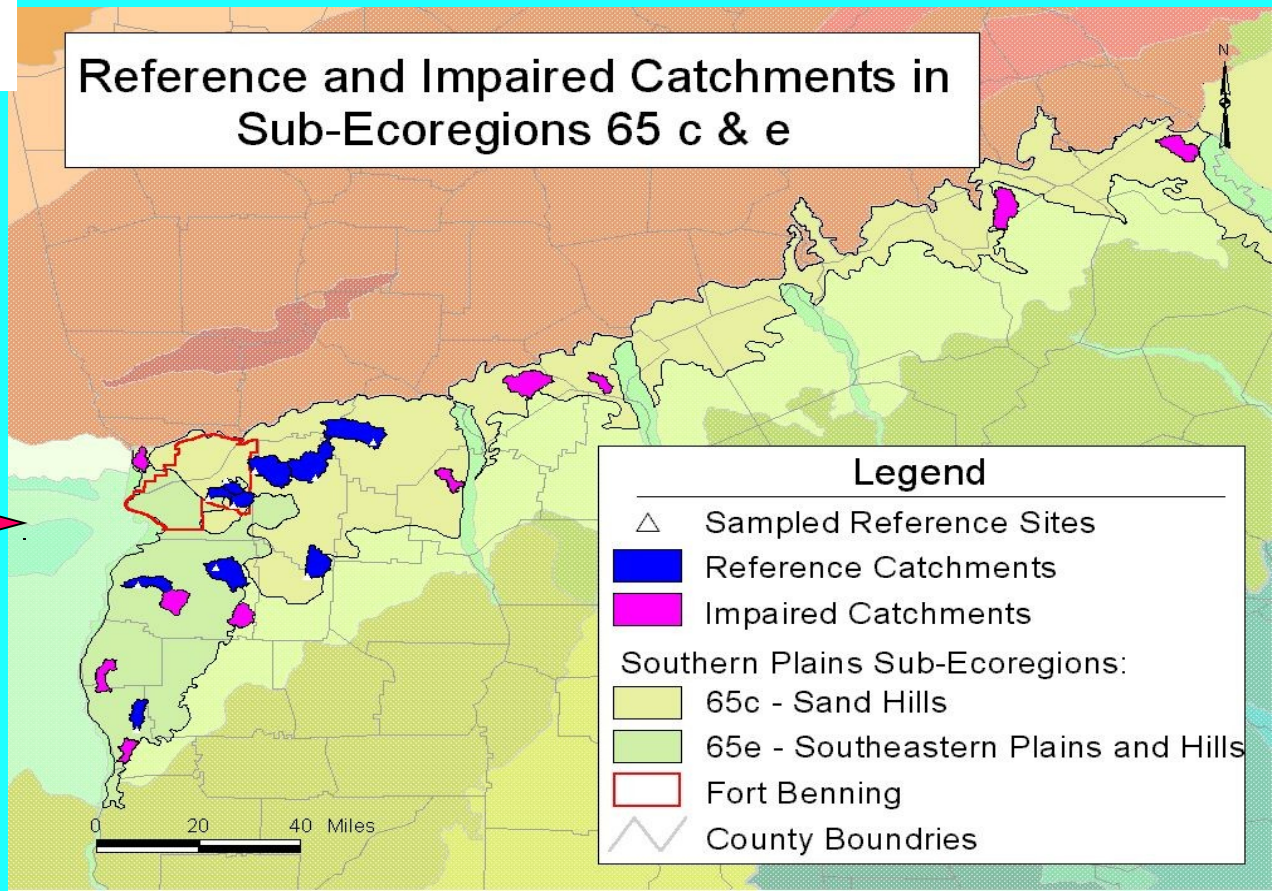
- Prepare set of monitoring & management protocols that can be used by others to:
  - Continue stream analyses
  - Interpret results
  - Protect & improve aquatic habitats

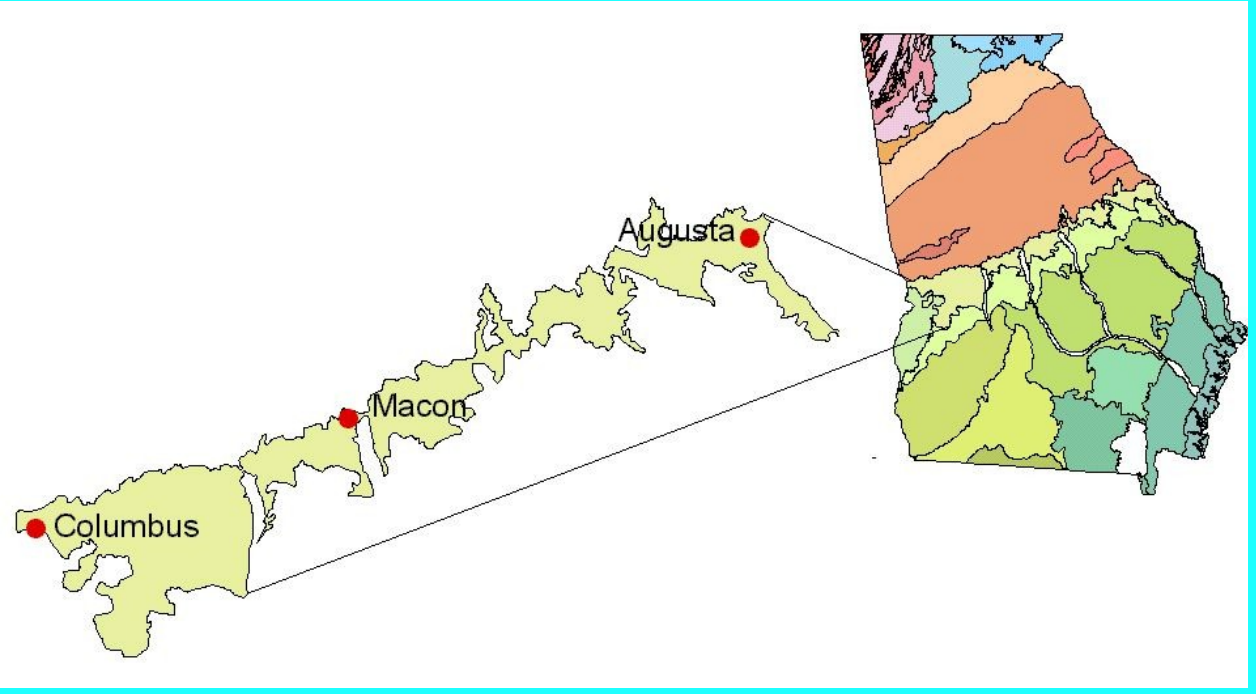
Georgia Ecoregions Project (GAEPD)

- **Statewide assessment using RBP**
  - Chose reference & impaired catchments in each sub-ecoregion (EPA designation)
  - Measured, scored & evaluated ~ 70 metrics
  - Reduced metrics to a composite index that distinguished impaired from reference sites within each sub-ecoregion

Georgia Ecoregions

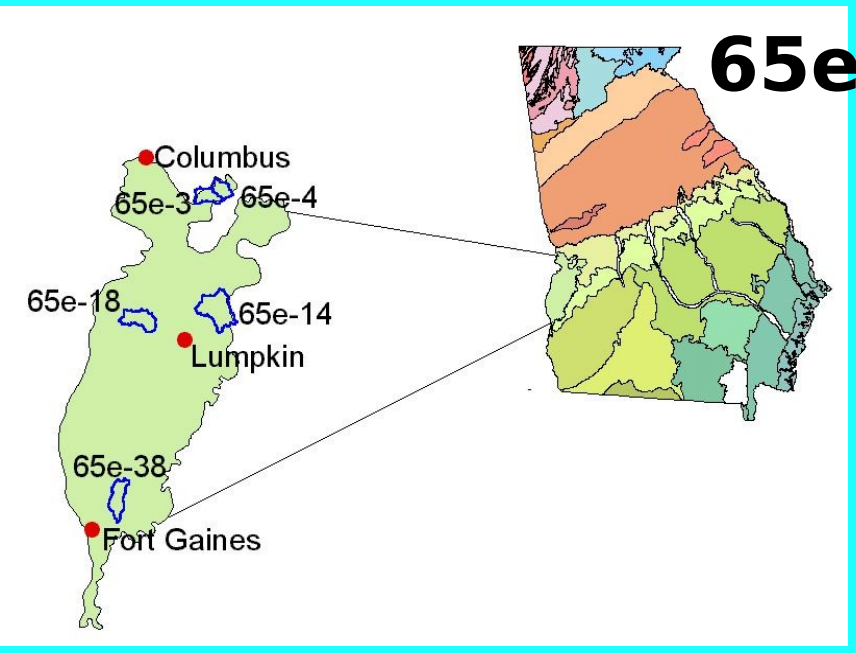






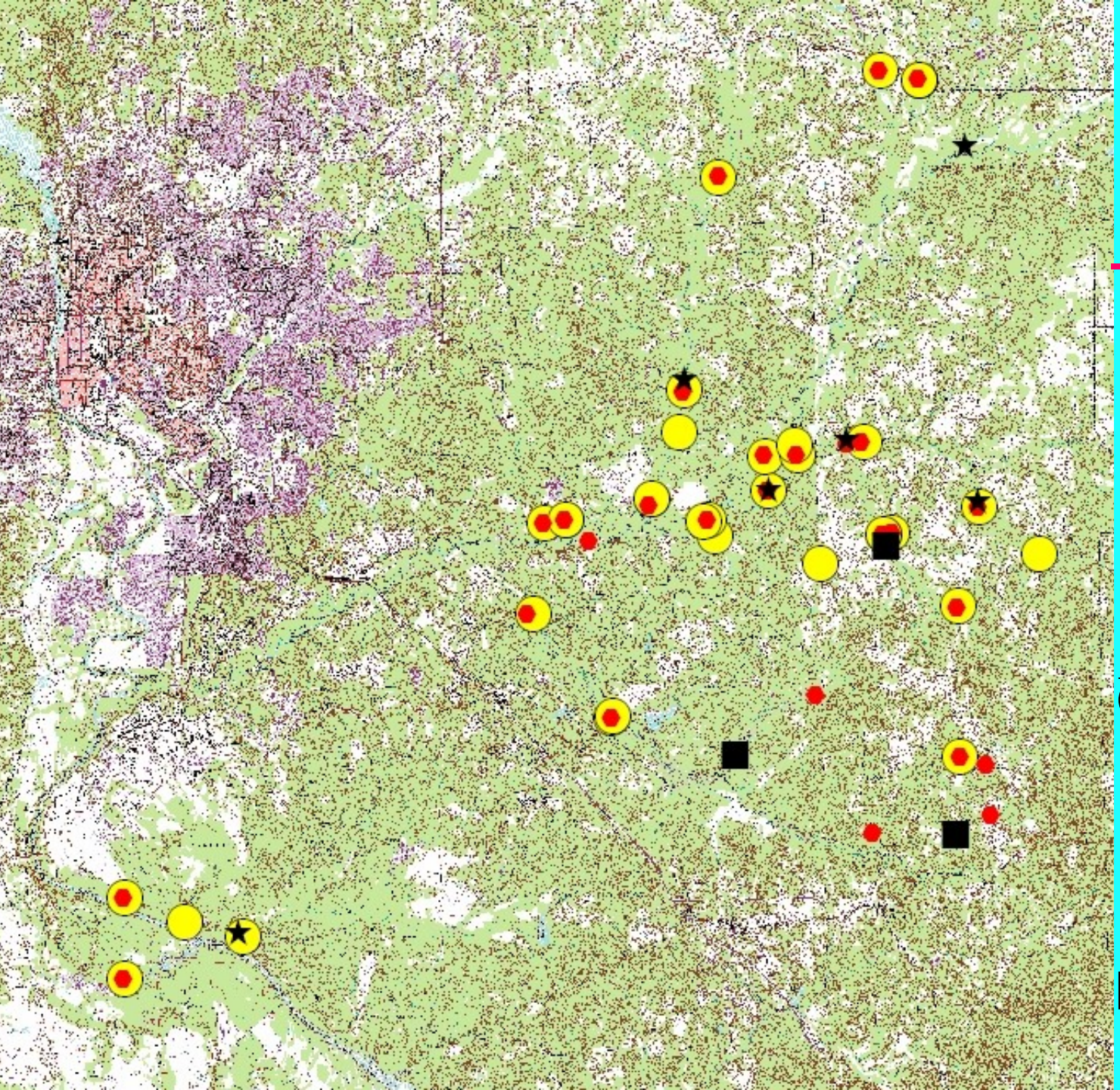
65 c - Sand Hil

Marine sands & clays over crystalline & metamorphic rock



65e – Southeastern Plains &

Mix of clay, loam, & sand over sand, clay, marl



Study Sites

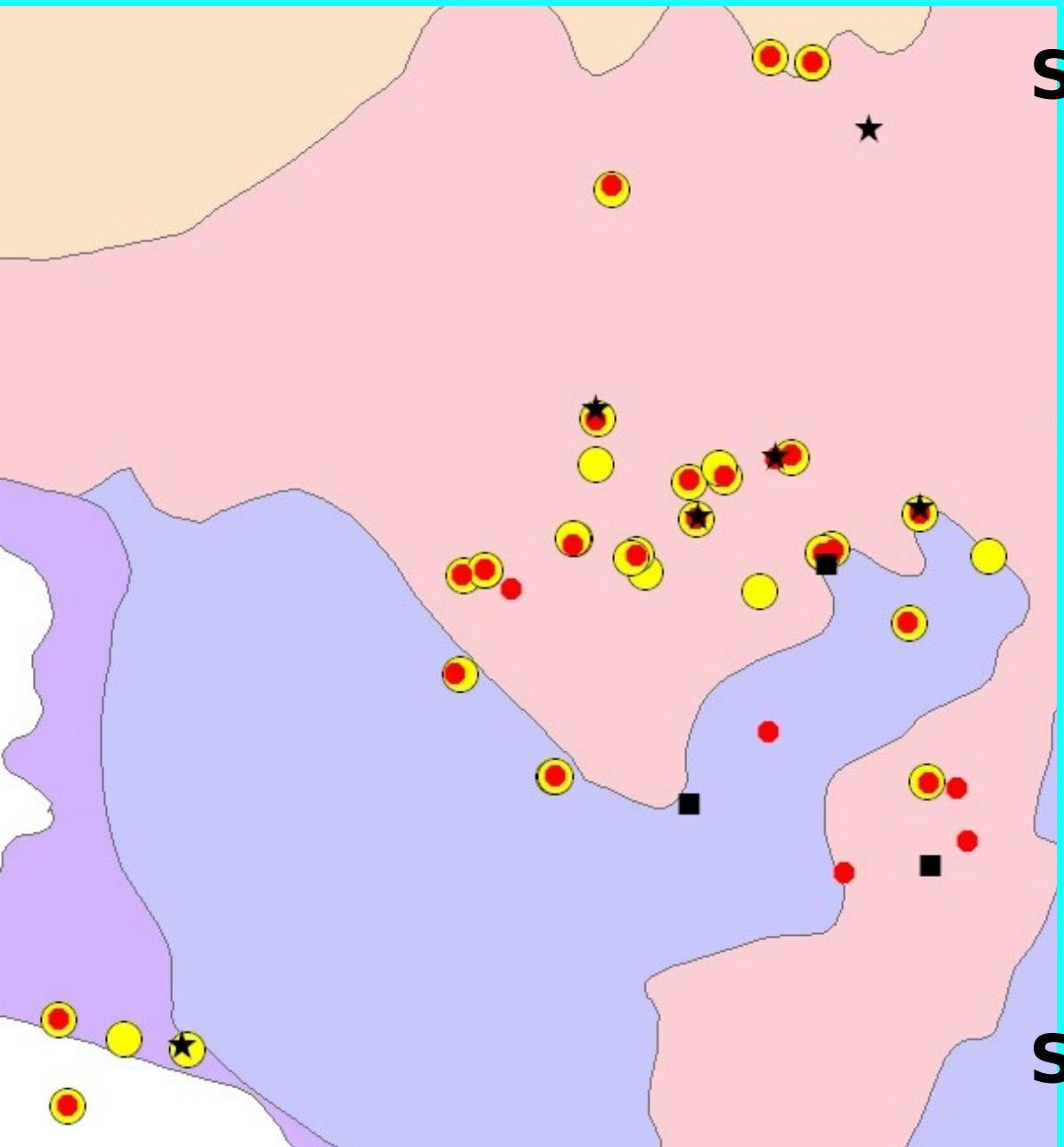
2003

2002

* Water Quality

Reference

Sub-Ecoregions



Sand Hills

2002

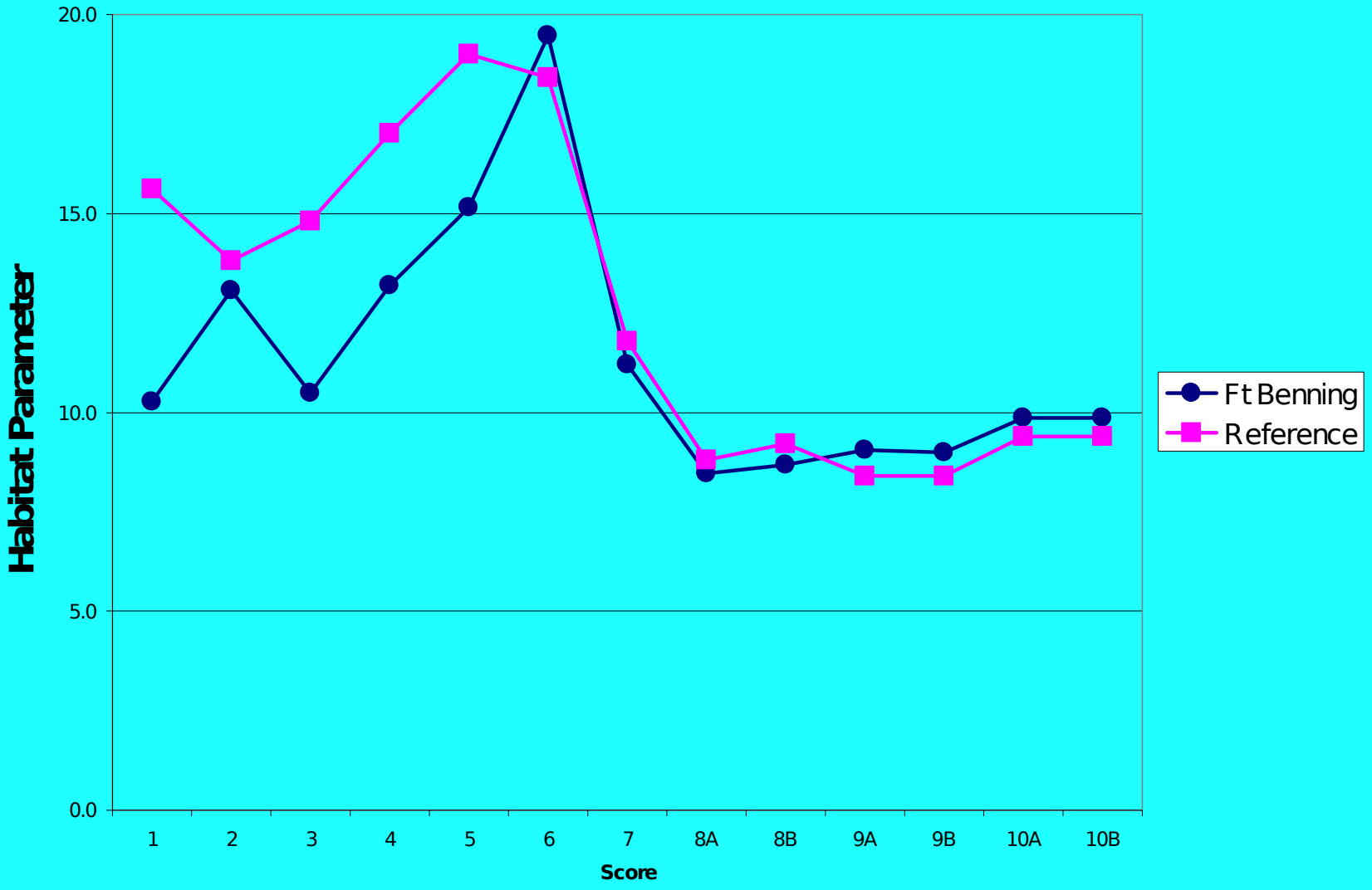
2003

Water Qualit

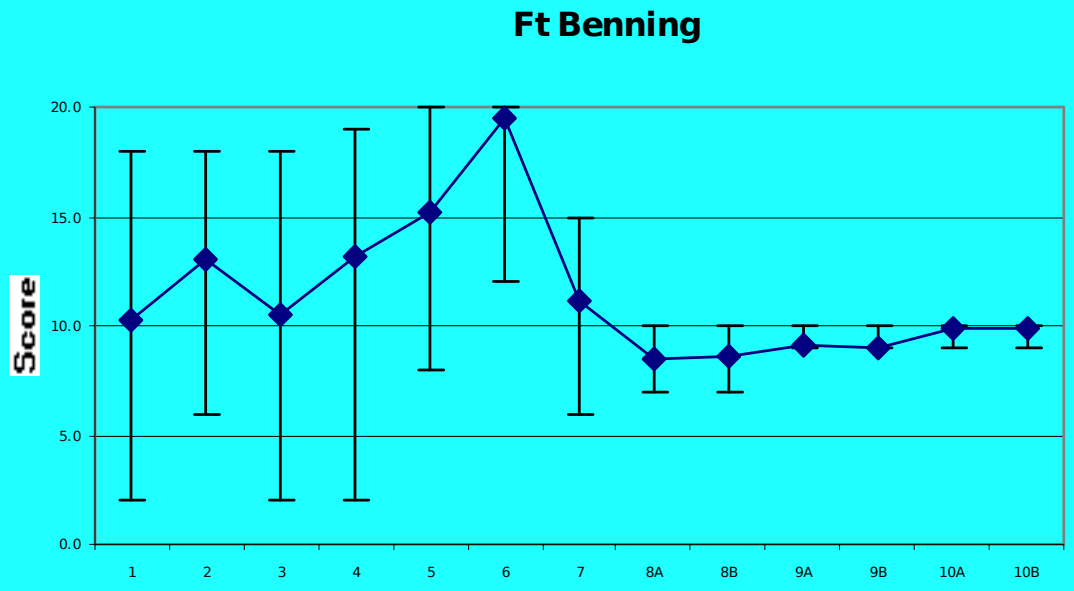
Reference

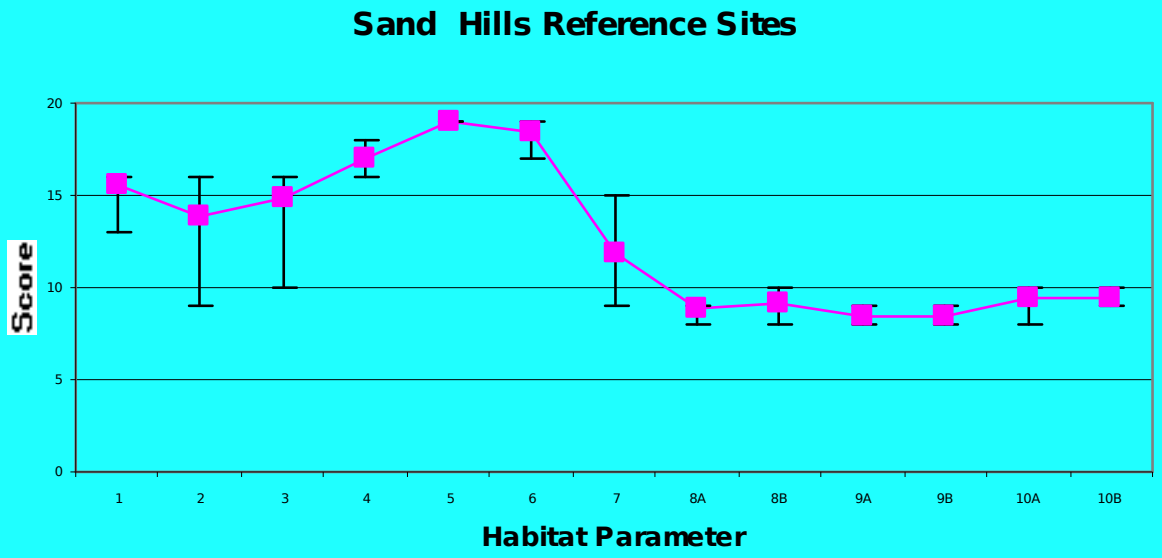
SE Plains & Hills

Physical Habitat Conditions

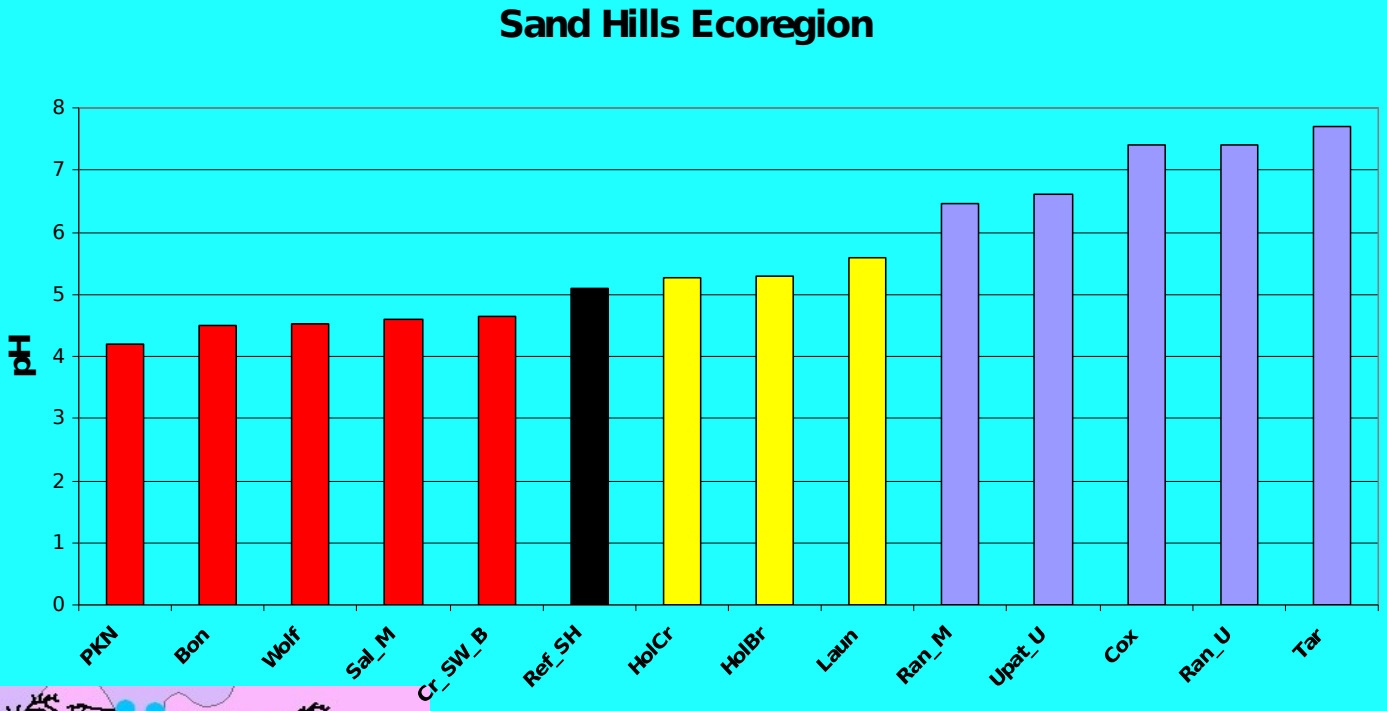


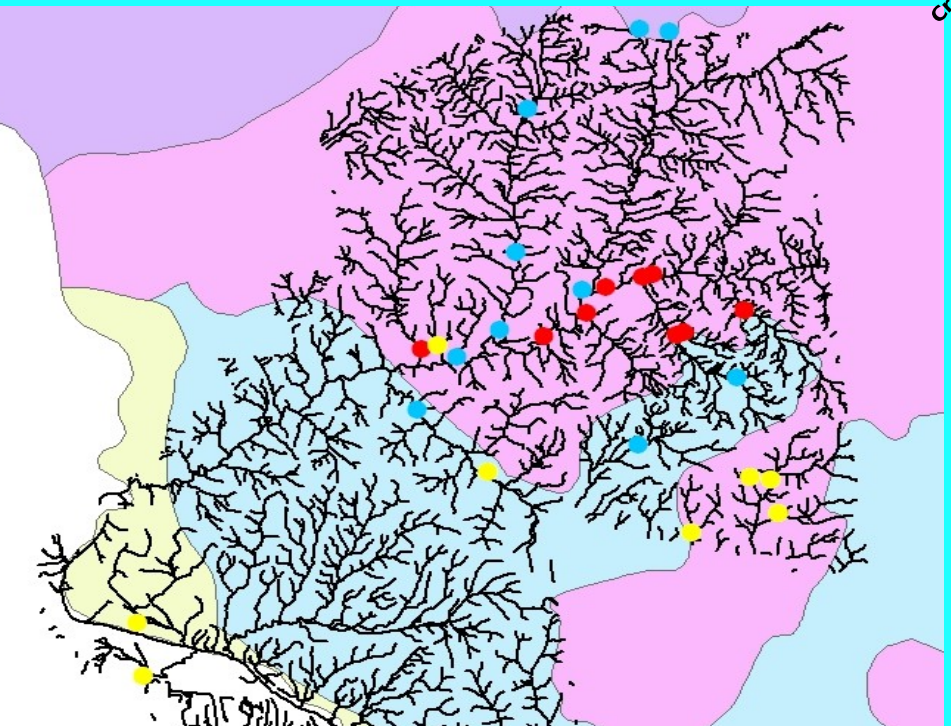
Physical Habitat Conditions





2003 Data



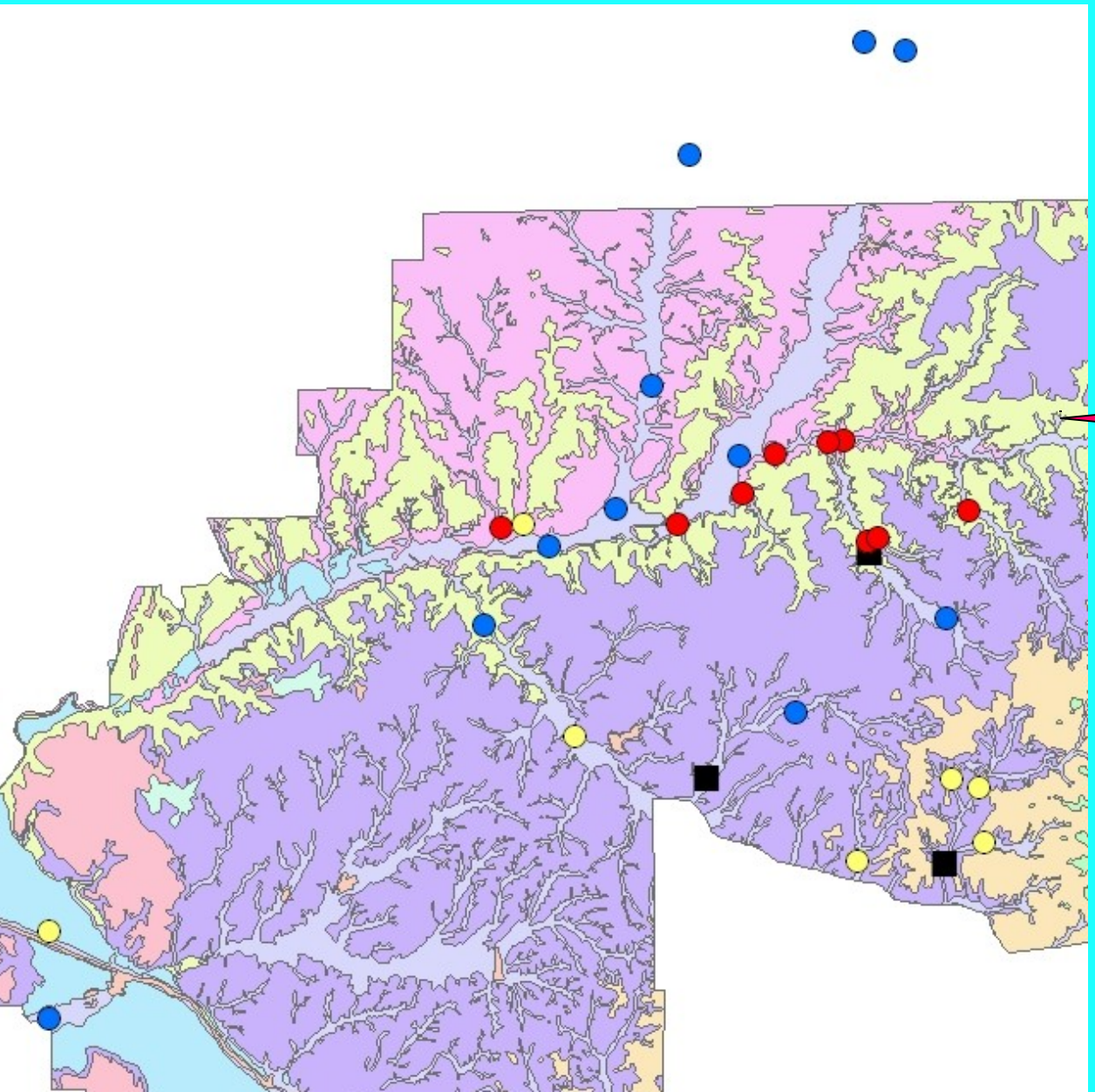


pH

- < 5.0
- 5 - 6
- > 6

Reference pH: 4.3 - 6

Effects of Local Geologic Conditions



Eutaw Formation

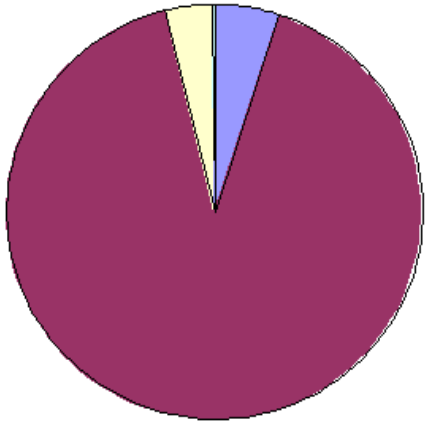
< 5.0

5 - 6

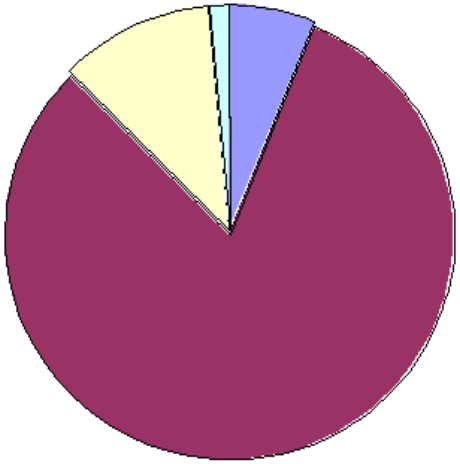
> 6

Reference

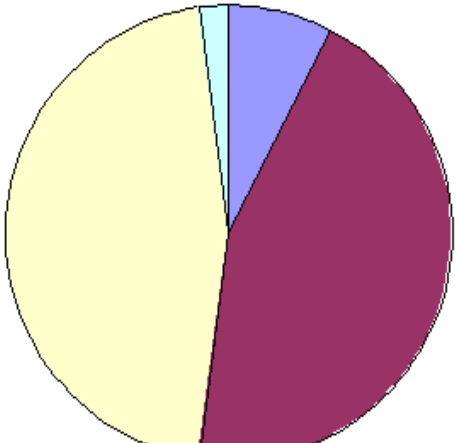
Ft. Benning Streams



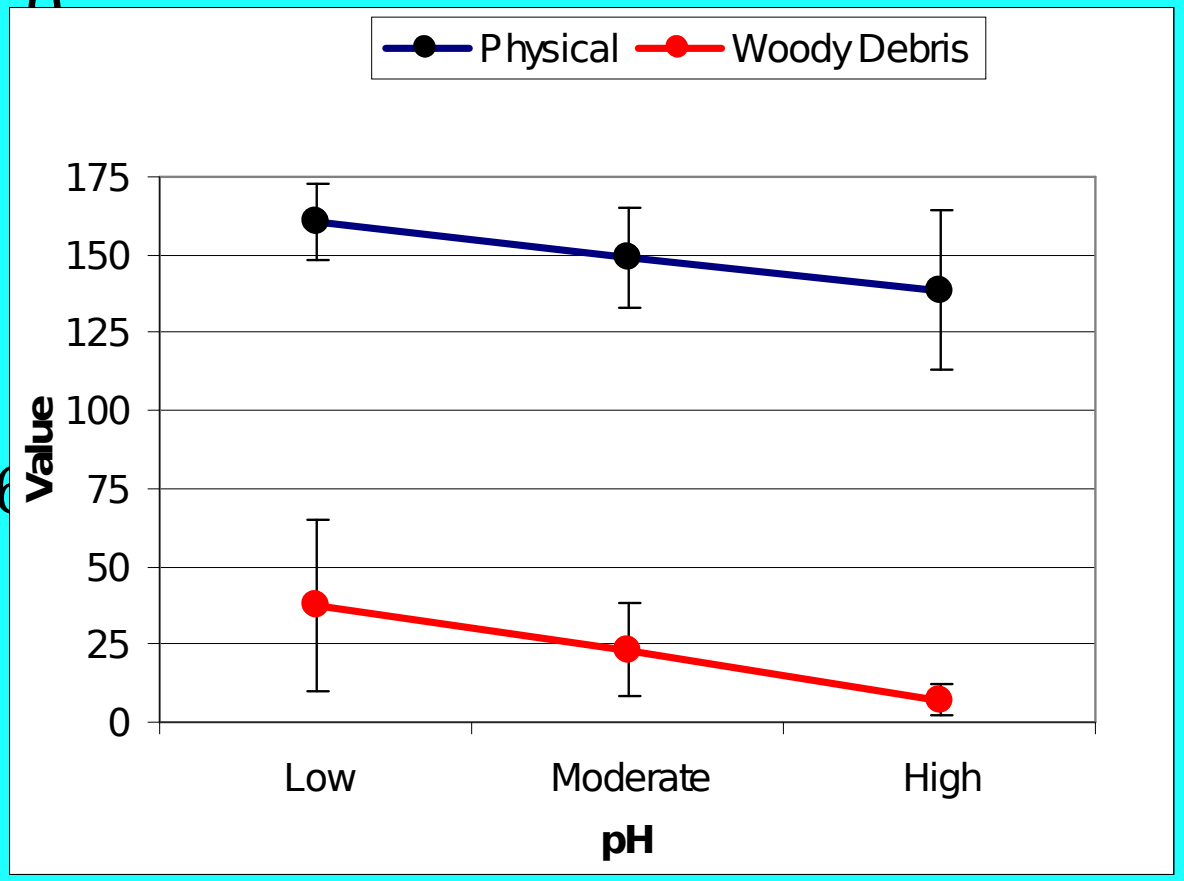
pH < 5.0



pH 5 - 6



pH > 6.0

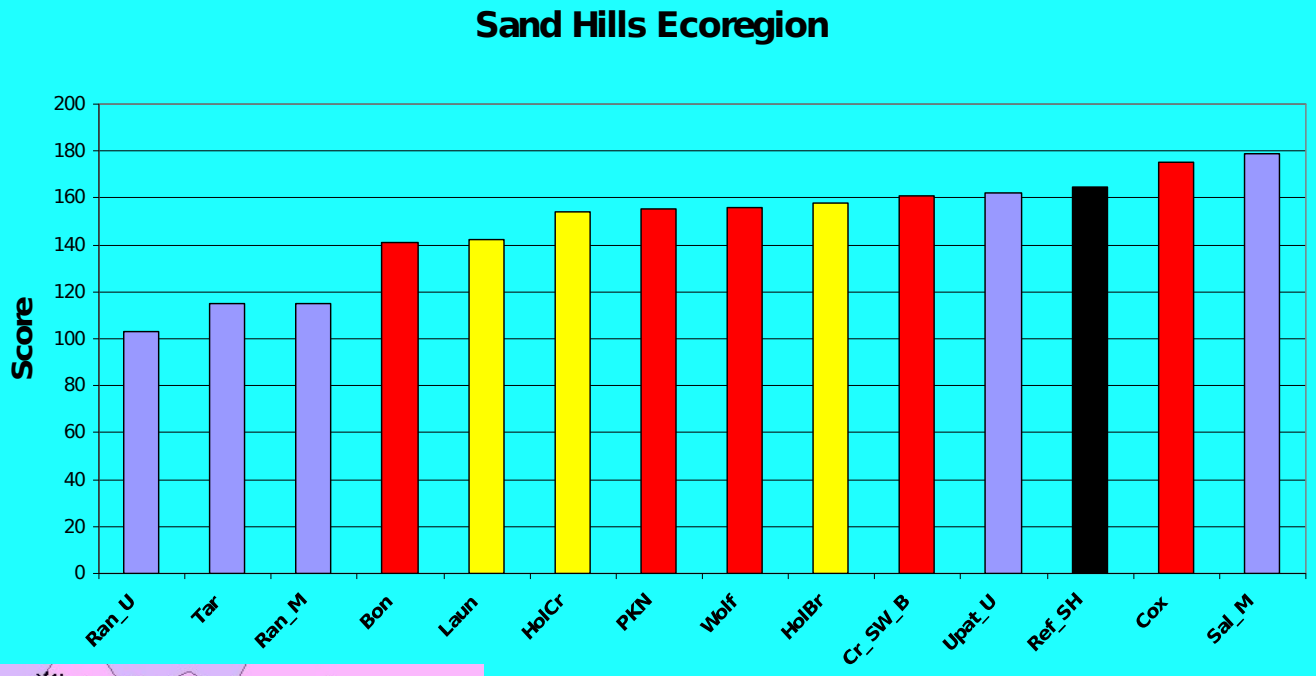


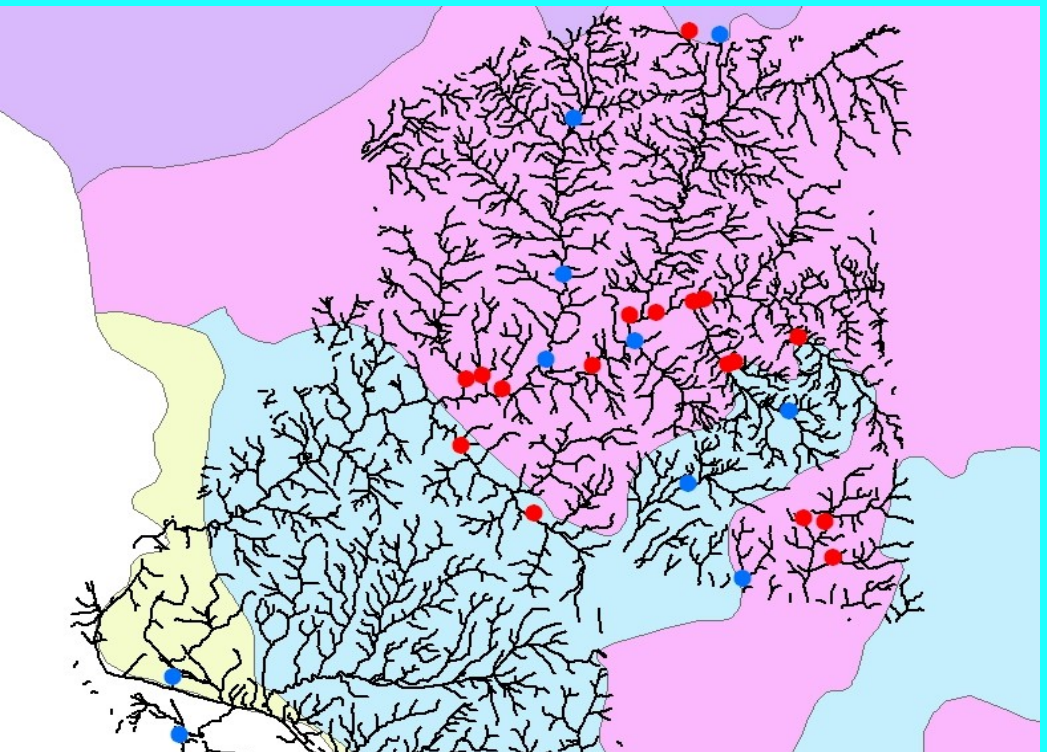
Collectors

Piercers

Filterers

Others



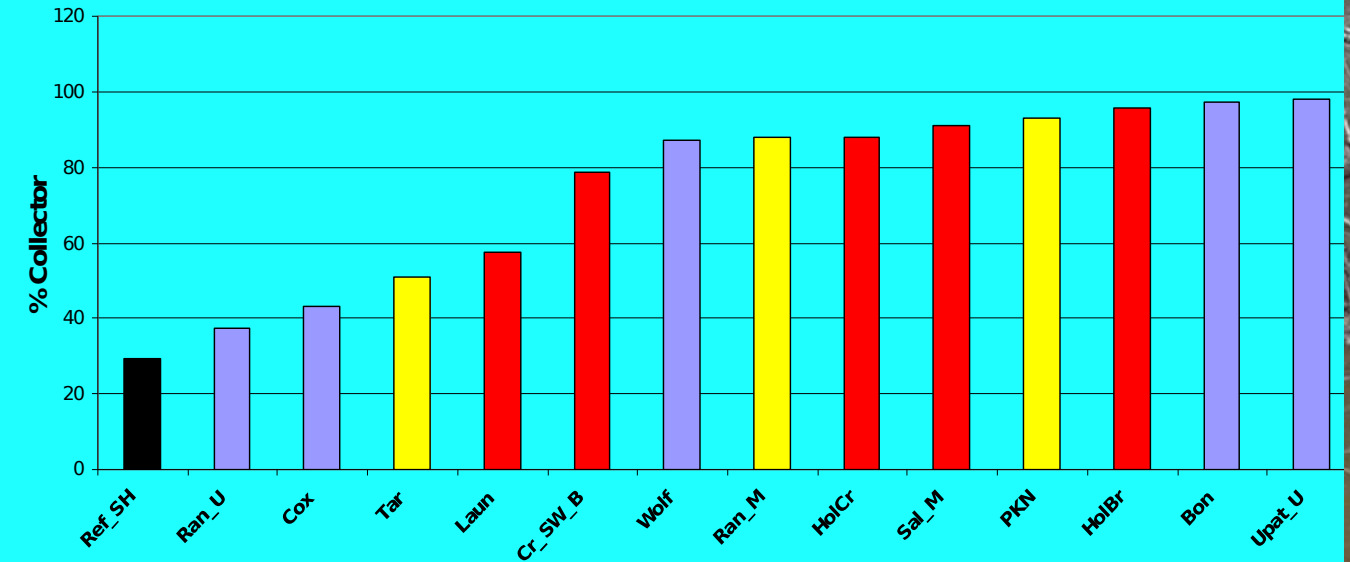


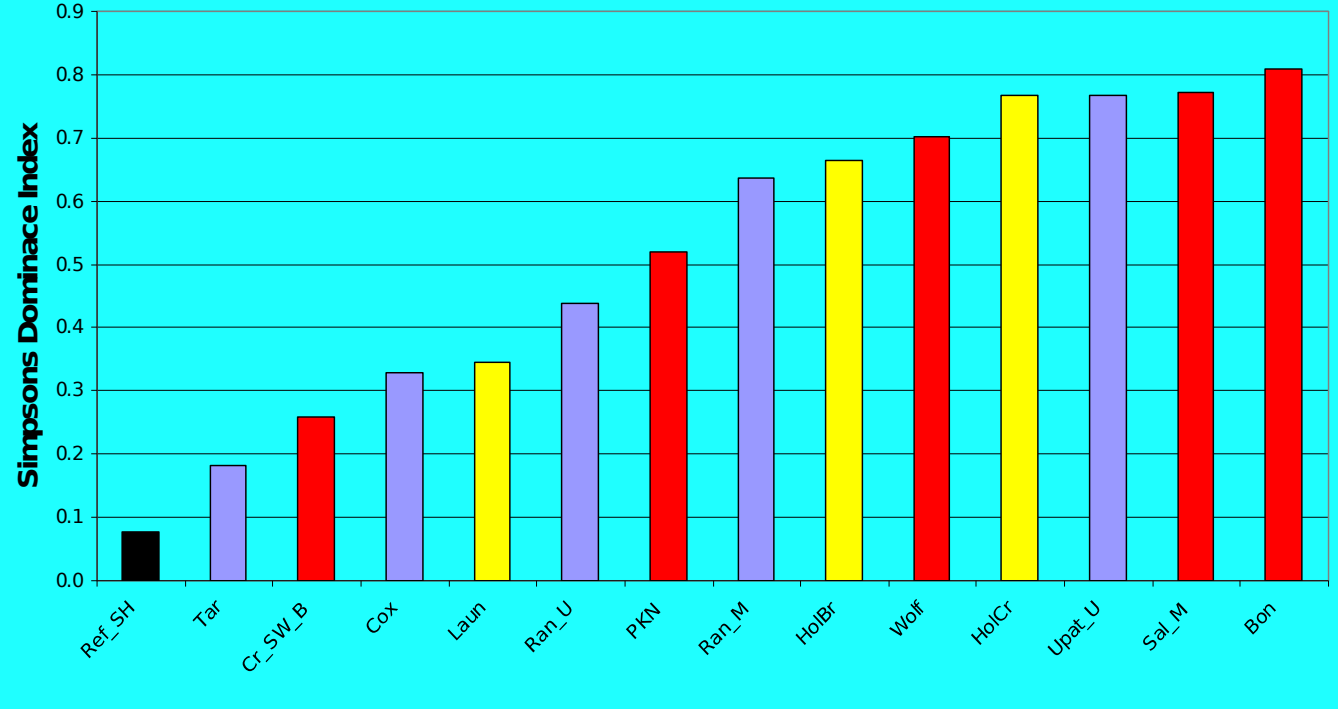
Physical Habita

< 150

> 150

Sand Hills Ecoregion





Aquatic Studies - Summary

- System driven by pH & availability of woody debris and stable substratum
- Aquatic biota have low diversity, lo

Little Pine Knot

Randall

Future Considerations

- Identify additional sites to:
  - Assess effects of pH, physical conditions on biota
  - Relate local conditions to water quality
- Identify metrics specific to Ft. Benning streams
- Initiate Task II
  - Interact with Ft. Benning personnel
  - Coordinate with states, CSU, who are conducting similar studies